

**REMARKS**

The applicant thanks the examiner for his review of the claims and prior art, and requests reconsideration of the pending claims in view of the below comments. Claims 16 and 17 have been cancelled, and claims 1, 8, 15 and 18 have been amended. Claims 1 and 8 have been amended to require a common node between the input switch and output switch, the common node coupled with and driven by the amplifier output. For support in the specification, see Figs. 1 and 2. Claim 15 has been amended to incorporate dependent claims 16 and 17, and further to require that the output switch in an off state interrupts the output feedback loop. For support in the specification, see Figs. 1 and 2. Claim 18 has been amended to correct a typo. No new matter has been added.

**35 U.S.C. §112**

The office action rejected claims 2, 10, and 18 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter the applicant regards as the invention. In particular, the office action states that it is not understood how “switches” can have “phase and duty cycles,” as “phase” and “duty cycle” are aspects of signals, not of switches. In response, the definition of “phase” is defined as “a distinct period or stage in a process of change or development.” (See The Oxford Encyclopedic English Dictionary, Third Edition, at page 1088, a copy of which is attached). The definition of “duty cycle” is “the proportion of time during which a component, device, or system is operated.” (See whatis.com at [http://searchsmb.techtarget.com/sDefinition/0,,sid44\\_gci499861,00.html](http://searchsmb.techtarget.com/sDefinition/0,,sid44_gci499861,00.html), a copy of which is attached.) Thus, it is clear that a “switch” can be controlled to operate with same “phase” and “duty cycle,” as required by claims 2, 10, and 18.

**35 U.S.C. §102**

Claims 15-20 stand rejected under 35 U.S.C. §102, second paragraph, as being anticipated by U.S. patent number 4,170,740 (Pernyeszi).

Amended claim 15 defines, in part, a multi-stage switched capacitor circuit having a first stage with an output feedback loop that includes an output switch. The output switch in an off state interrupts the output feedback loop. A second stage has an input switch, the input switch in

communication with the output feedback loop of the first stage. The circuit also has a means for applying a bootstrap voltage to the output switch and the input switch, the bootstrap voltage maintaining the input switch and the output switch in an on state during a specified time interval.

Pernyeszi fails to disclose a first stage having an output feedback loop that includes an output switch, the output switch in an off state interrupting the output feedback loop. Instead, the switches 48 and 49 in Pernyeszi interrupt output terminals 52 and 54 (see Fig. 1 of Pernyeszi). Pernyeszi does not teach or suggest that output terminals 52 or 54 are part of an output feedback loop of any stage. Accordingly, for this reason alone, claim 15 is allowable over the prior art. Dependent claims 18-20 are allowable for the same reason.

Additionally, applicant maintains that Pernyeszi does not disclose first and second stages. Instead, figure 1 generally shows output terminals 52 and 54 with no connections. More specifically, figure 1 of Pernyeszi shows a circuit 10 for delivering high voltage signals to an output having ports 52 and 54. The circuit 10 can be used in a system shown in figure 2, in which the circuit 10 can be substituted for switches S1-S6 (see column 4, line 67 to column 5, line 5). Clearly, two stages are not shown or suggested in Pernyeszi as being coupled with the output terminal 52 or 54, respectively. Accordingly, for this additional reason, claim 15 is patentable over the cited art. In a similar manner, dependent claims 18-20 also are allowable for the same reasons.

35 U.S.C. §103

Claims 1-3 and 6-14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hui et al. (U.S. Patent No. 5,808,502, hereinafter Hui) in view of Csapa (U.S. Patent Application 2003/0202497) or O'Neill (U.S. Patent No. 4,024,349).

As an initial matter, Csapa has a filing date of October 31, 2002 and claims priority from provisional application no. 60/375,873, filed on April 26, 2002. Hence, Csapa is not prior art to the present application, under any subsection of §102 and §103, because the present application claims was filed August 17, 2001 and claims priority from provisional patent application serial number 60/305,973, filed July 17, 2001, thus predating the filing date of Csapa. As such, the pending rejection of claims 1-3 and 6-14 as being obvious over Hui in view of Csapa has been overcome.

Claim 1 defines, in part, a multi-stage circuit having a first stage with an output switch, and a second stage with an input switch. A bootstrap module is in communication with both switches. The first stage has an amplifier with an amplifier output. A common node between the input switch and output switch is coupled with and driven by the amplifier output.

Hui discloses a first station (connected to A0) having an input switch 30L, and a second station (connected to B0) having an output switch 30R (see Hui at Fig. 9). However, Hui fails to disclose an amplifier output connected between the input switch 30L and output switch 30R. O'Neill discloses various amplifiers 315 and 322 in a quasi-resonant transfer conferencing circuit (see Fig. of O'Neill).

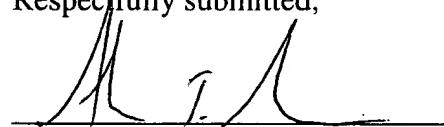
The combination of Hui and O'Neill fails to form applicant's invention. The office action states that based on O'Neill, it would have been obvious to use an amplifier to output buffer the signals of the stations in Hui connected to A0. However, this would couple an amplifier output to A0 (or B0) of Hui, but not to a common node between the input switch and output switch, as required by claim 1.

Accordingly, since the combination of Hui and O'Neill fails to teach or suggest applicant's invention, amended claim 1 is allowable over the combination of Hui and O'Neill. Claims 2, 3, 6 and 7 depend on and incorporate independent claim 1, and are allowable for the same reasons as discussed above with regard to claim 1, and are further allowable in view of the additional limitations set forth therein. Amended claim 8 also requires a common node between the input switch and output switch, the common node coupled with and driven by the amplifier output. Thus, claim 8 and dependent claims 9-14 and 29 are also allowable for the same reasons as discussed above with regard to amended claim 1, and are further allowable in view of the additional limitations set forth therein.

Applicant believes that no extension of time is required; however, this conditional petition is being made to provide for the possibility that the applicant has inadvertently overlooked the need for an extension of time. If any additional fees are required for the timely consideration of this application, please charge deposit account number 19-4972.

It is believed that the application is in condition for allowance. Consideration of the application and issuance of a notice of allowance are respectfully requested.

Respectfully submitted,



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**phalangeal** /fə'lændʒiəl/ adj. Anat. of or relating to a phalanx.

**phalanger** /fə'lændʒə(r)/ n. an arboreal Australasian marsupial of the family Phalangeridae, including cuscuses and brush-tailed possums. (See also *flying phalanger*.) [F f. Gk phalaggion spider's web, f. the webbed toes of its hind feet]

**phalanx** /fəlæŋks/ n. (pl. **phalanxes** or **phalanges** /fə'lændʒi:z/) 1 Gk Antq. a line of battle, esp. a body of Macedonian infantry drawn up in close order. 2 a set of people etc. forming a compact mass, or banded for a common purpose. 3 Anat. a bone of the finger or toe. 4 Bot. a bundle of stamens united by filaments. [L f. Gk φάλαγξ -ggos]

**phalarope** /fələ'rō:p/ n. a small swimming sandpiper of the genus *Phalaropus*, with a straight bill and lobed feet, notable for its reversal of the sexual roles. [F f. mod.L *Phalaropus*, irreg. f. Gk *phalairis* coot + *podos* foot]

**phallī** pl. of PHALLUS.

**phallic** /fælik/ adj. 1 of, relating to, or resembling a phallus. 2 Psycho. denoting the stage of male sexual development characterized by preoccupation with the genitals. □ **phallically** adv. [F *phallique* & Gk *phallikos* (as PHALLUS)]

**phallocentric** /fælə'kentrɪk/ adj. centred on the phallus or on male attitudes. □ **phallocentricty** /-sen'trɪsɪt/ n. **phallocentrism** /-sentri(z)m/ n.

**phallus** /fælus/ n. (pl. **phallī** /-lai/ or **phalluses**) 1 the (esp. erect) penis. 2 an image of this as a symbol of generative power in nature. □ **phallism** n. **phallicism** /-lɪ,sm/ n. [LL f. Gk *phallos*]

**phanariot** /fə'nærɪət/ n. hist. a member of a class of Greek officials in Constantinople under the Ottoman Empire. [mod.Gk *phanaritēs* f. *phanar* the part of the city where they lived f. Gk *phanarion* lighthouse (on the Golden Horn)]

**phanerogram** /fænərə,gæm/ n. Bot. a plant that has stamens and pistils, a flowering plant (cf. CRYPTOGAM). □ **phanerogamic** /fænərə'gæmɪk/ adj. **phanerogamous** /'-rɒgəməs/ adj. [F *phanérogame* f. Gk *phaneros* visible + *gamos* marriage]

**phantasize** archaic var. of FANTASIZE.

**phantasm** /fæntæz(ə)m/ n. 1 an illusion, a phantom. 2 (usu. foll. by of) an illusory likeness. 3 a supposed vision of an absent (living or dead) person. □ **phantasmal** /fæn'tazməl/ adj. **phantasmic** adj. [ME f. OF *fantasme* f. L f. Gk *phantasma* f. *phantazō* make visible f. *phanē* show]

**phantasmagoria** /fæntæzmə'go:rɪə/ n. 1 a shifting series of real or imaginary figures as seen in a dream. 2 an optical device for rapidly varying the size of images on a screen. □ **phantasmagoric** /'-gorɪk/ adj. **phantasmagorical** adj. [prob. f. F *phantasmagorie* (as PHANTASM + fanciful ending)]

**phantast** var. of FANTAST.

**phantasy** archaic var. of FANTASY.

**phantom** /fæntəm/ n. & adj. • n. 1 a ghost; an apparition; a spectre. 2 a form without substance or reality; a mental illusion. 3 Med. a model of the whole or part of the body used to practise or demonstrate operative or therapeutic methods. • adj. merely apparent; illusory. □ **phantom circuit** an arrangement of telegraph or other electrical wires equivalent to an extra circuit. **phantom limb** a continuing sensation of the presence of a limb which has been amputated. **phantom pregnancy** Med. the symptoms of pregnancy in a person not actually pregnant. [ME f. OF *fantosme* ult. f. Gk *phantasma* (as PHANTASM)]

**Pharaoh** /fə'rəʊ/ n. 1 the ruler of ancient Egypt. 2 the title of this ruler. □ **Pharaoh's ant** a small reddish ant, *Monomorium pharaonis*, native to warm regions and a pest of heated buildings elsewhere. **Pharaoh's serpent** an indoor firework burning and uncoiling in serpentine form. □ **Pharaonic** /fə'reɪ'ɒnik, fə'rəʊnɪk/ adj. [OE f. eccl. L *Pharao* f. Gk *Pharao* f. Heb. *par'oh* f. Egypt. *pr'* great house]

**Pharisee** /fə'reɪ,si:/ n. 1 a member of an ancient Jewish sect. (See note below) 2 a person of the spirit or disposition attributed to the Pharisees in the New Testament; a self-righteous person; a hypocrite. □ **Pharisaism** /-sɪz(ə)m/ n. **Pharisale** /fə'reɪ'sen/k/ adj. **Pharisalcal** adj. [OE *fariseus* & OF *pharise* f. eccl. L *pharisaeus* f. Gk *Pharisaios* f. Aram. *p'ršyyā* pl. f. Heb. *p'rūd* separated]

• The Pharisees are mentioned only by Josephus and in the New Testament, where they are presented as having pretensions to superior sanctity. Unlike the Sadducees, who tried to apply Mosaic law strictly, the Pharisees allowed some freedom of interpretation. Although in the Gospels they are represented as the chief opponents of Christ they seem to have been less hostile than the Sadducees to

the nascent Church, with which they shared belief in the Resurrection.

**pharmaceutical** /fə'mæ:ʃjʊ:tɪk(ə)l/ adj. & n. • adj. 1 of or engaged in pharmacy. 2 of the use or sale of medicinal drugs. • n. a medicinal drug. □ **pharmaceutically** adv. **pharmaceutics** n. [L *pharmaceuticus* f. Gk *pharmakeutikos* f. *pharmakeutēs* druggist f. *pharmakon* drug]

**pharmacist** /fə:mæ:sɪst/ n. a person qualified to prepare and dispense drugs.

**pharmacognosy** /fə'mæ:k'ɒgnəsɪ/ n. the science of drugs, esp. relating to medicinal products in their natural or unprepared state. [Gk *pharmakon* drug + *gnōsis* knowledge]

**pharmacology** /fə'mæ:klədʒi/ n. the branch of medicine that deals with the uses, effects, and modes of action of drugs. □ **pharmacologist** n. **pharmacological** /-kɔ:lodʒɪk(ə)l/ adj. **pharmacologically** adv. [mod.L *pharmacologia* f. Gk *pharmakon* drug]

**pharmacopoeia** /fə'mækə'pi:/ n. 1 a book, esp. one officially published, containing a list of drugs with directions for use. 2 a stock of drugs. □ **pharmacopœial** adj. [mod.L f. Gk *pharmakopoiia* f. *pharmakopoios* drug-maker (as PHARMACOLOGY + *-poios* making)]

**pharmacy** /fə'mæ:si/ n. (pl. -les) 1 the preparation and the (esp. medicinal) dispensing of drugs. 2 a pharmacist's shop, a dispensary. [ME f. OF *farmacie* f. med.L *pharmacia* f. Gk *pharmakeia* practice of the druggist f. *pharmakeus* f. *pharmakon* drug]

**Pharos** /fə'ros/ a lighthouse, one of the earliest known, erected by Ptolemy II (308–246 BC) in c.280 BC on the island of Pharos, off the coast of Alexandria. Often considered one of the Seven Wonders of the World, it is said to have been over 130 m (440 ft) high and to have been visible from 67 km (42 miles) away. It was finally destroyed in 1375.

**pharos** /fə'ros/ n. a lighthouse or a beacon to guide sailors. [L f. Gk *Pharos* PHAROS]

**pharyngo-** /fə'ringgə/ comb. form denoting the pharynx.

**pharyngotomy** /fə'rinj'gotəmɪ/ n. (pl. -les) Med. an incision into the pharynx.

**pharynx** /fə'ringkəs/ n. (pl. **pharynges** /fə'rmɪdʒi:z/) 1 Anat. & Zool. a membrane-lined cavity behind the mouth and nose, connecting them to the oesophagus. 2 Zool. (in invertebrates) part of the alimentary canal immediately posterior to the mouth cavity. □ **pharyngeal** /fə'ringg(ə)l/ adj. **pharyngeal** /fə'rinj'dʒi:əl/ adj. **pharyngitis** /'-dʒaɪtɪs/ n. [mod.L f. Gk *pharugx* -ggos]

**phase** /feɪz/ n. & v. • n. 1 a distinct period or stage in a process of change or development. 2 each of the aspects of the moon or a planet, according to the amount of its illumination, esp. the new moon, the first quarter, the last quarter, and the full moon. 3 Physics a stage in a periodically recurring sequence, esp. of alternating electric currents or light vibrations. 4 a difficult or unhappy period, esp. in adolescence (just going through a phase). 5 a genetic or seasonal variety of an animal's coloration etc. 6 Chem. a distinct and homogeneous form of matter separated by its surface from other forms. • vt. carry out (a programme etc.) in phases or stages. □ **In phase** having the same phase at the same time. **out of phase** not in phase. **phase in** (or out) bring gradually into (or out of) use. **phase rule** Chem. a rule relating numbers of phases, constituents, and degrees of freedom. **three-phase** (of an electric generator, motor, etc.) designed to supply or use simultaneously three separate alternating currents of the same voltage, but with phases differing by a third of a period. □ **phasic** adj. [F *phase* & F. earlier *phasie* f. Gk *phasis* appearance f. *phanē* show]

**Phasmida** /fæzmɪdə/ n.pl. Zool. an order of insects comprising the stick insects and leaf insects, which have very long bodies that look like twigs or leaves. □ **phasmid** n. & adj. [mod.L f. Gk *phasma* spectre]

**phatic** /fætɪk/ adj. (of speech etc.) used to convey general sociability rather than to communicate a specific meaning, e.g. 'nice morning isn't it?' [Gk *phatos* spoken f. *phēmi* phan-speak]

**Ph.D.** abbr. Doctor of Philosophy. [L *philosophiae doctor*]

**pheasant** /'fez(ə)nt/ n. a large long-tailed game bird of the family Phasianidae, orig. from Asia; esp. the common *Phasianus colchicus*. □ **pheasantry** n. (pl. -ies). [ME f. AF *fasant* f. OF *faisan* f. L *phasianus*; Gk *phasianos* (bird) of the river *Phasis* in Asia Minor]

**Phelippides** /fə'lɪpɪdɪz/ (5th century BC), Athenian messenger. He was sent to Sparta to ask for help after the Persian landing at Marathon in 490 and is said to have covered the 250 km (150 miles) in two days on foot.

**phenacetin** /fi'næsɪtɪn/ n. an acetyl derivative of phenol used to treat fever etc. [PHENO- + ACETYL + -IN]

**phencyclidine**

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**phenobarbital**

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**phenocryst**

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**phenol** /fɪ:nɒl/

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**phenomena** pl.

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**phenotype** /fɪ:nɔ:tɪp/

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**phenotypical** adj

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**phenylalanine** /

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**pheromone** /'ferə

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the same species. □ + HORMONE]

**phew** /fju:/ int. an

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phial /fæɪl/ n. a sma

size f. *phiala* phiala 1

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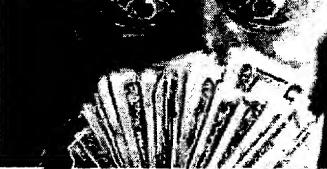
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## duty cycle

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Duty cycle is the proportion of time during which a component, device, or system is operated. The duty cycle can be expressed as a ratio or as a percentage. Suppose a disk drive operates for 1 second, then is shut off for 99 seconds, then is run for 1 second again, and so on. The drive runs for one out of 100 seconds, or 1/100 of the time, and its duty cycle is therefore 1/100, or 1 percent.

The more a circuit, machine or component is used, the sooner it will wear out. Therefore, the higher the duty cycle, the shorter the useful life, all other things being equal. If the above-mentioned disk drive has a life expectancy of 1,000,000 hours based on a 1 percent duty cycle, that same device's expectancy would probably be about 500,000 hours based on a duty cycle of 2 percent, and 2,000,000 hours based on a duty cycle of 0.5 percent.

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